

Remarks

Claims 1, 3-4, and 7-24 are pending.

Claims 7-15, 19, and 22 are amended. Claims 1, 3-4, and 16-18 are canceled. The features recited in the dependent claims 16-18 are incorporated into the independent claim 15. No new subject matter is added. Claims 7-15 and 19-24 remain in the case for consideration. Reconsideration and allowance of claims 7-15 and 19-24 are requested in light of the above amendments and the following remarks.

Claim Rejections – 35 U.S.C. § 112 Second Paragraph

Claim 8 was rejected as being indefinite. Claim 8 was amended in the response filed 10/2/2007, in which the word “the” that precedes “Network Processing Forum” was deleted. Applicant respectfully requests the withdrawal of the rejection.

Claim Rejections – 35 U.S.C.103

Claims 1, 3-4, and 7-24 were rejected as being unpatentable over Everdell in view of Crump (US 6999454). The rejection is respectfully traversed.

Claim 15 is amended to recite the features of claims 17-18, which are now canceled. Claim 15, as amended, recites “a control plane having a controller control plane protocol module to implement a core functionality of a control plane protocol module; at least one forwarding plane having a worker control plane protocol module to implement a portion of the control plane protocol module that is separate and distinct from the core functionality.” Claims 19 and 22 recite similar features as claim 15. *See* specification, page 5, lines 12-14.

Everdell teaches a network device having a dedicated control path separated from the data path and dedicated control path resources for each distributed processor within the network device, such that each distributed processor has sufficient bandwidth on the control path to

transmit control information at high frequencies. *See* Everdell, paragraph [0008], and abstract. Everdell does not teach or suggest a distributed processing architecture to offload portion of the control plane processing for a control plane protocol module from the control plane to at least one forwarding plane, such that a core functionality of the control plane protocol module is implemented at the control plane, while a portion of the control plane protocol module that is separate and distinct from the core functionality is implemented in the forwarding plane.

Specifically, Everdell does not teach a controller control plane protocol module and a worker control plane protocol module as recited in claim 15. Everdell teaches a hierarchical relationship between the master SRM 36 and the local resilient manager LRM. Everdell describes “the master SRM 36 serves as the top hierarchical level fault/event manager, each slave SRM 37a-37n serves as the next hierarchical level fault/event manager, and software applications resident on each board, for example, ATM 110-113 and device drivers 43a-43d on line card 16a include sub-processes that serve as the lowest hierarchical level fault/event managers (i.e., local resiliency managers, LRM).” *See* Everdell, paragraph [577]; FIG. 26. In other words, Everdell’s master SRM and local resilient manager LRM are both fault/event managers that perform fault/event functions at different level of abstractions, not a controller control plane protocol module and a worker control plane protocol module performing separate and distinct functions, namely “the core functionality of the control plane protocol module and the portion of the control plane protocol module that is separate and distinct from the core functionality.”

With respect to Everdell’s MCD, neither the cited paragraph [0166] in the Office Action nor elsewhere in Everdell teach or suggest that Everdell’s MCD implements “a core functionality of the control plane protocol module,” while a portion of the control plane protocol module that

is separate and distinct from the core functionality is offloaded to the slave and/or local resilient manager LRM.

The Office Action acknowledges that Everdell does not teach “implementing a portion of the control plane protocol module that is separated from the core functionality.” *See* Office Action dated 11/26/2007, page 5, second paragraph.

Crump does not cure the deficiencies of Everdell. Crump teaches a control plane, which is separated into routing control (Routing) and box management control (MGT) functions. The MGT functions are substantially isolated to the control processor (CP) card 610, while the Routing functions and distributed routing table manager (DRTM) are distributed across the CP card 610 and the service termination (ST) cards 640. *See* Crump, col. 6, lines 27-32.

Crump's ST card 640 includes hardware components for performing high-speed information forwarding and a high-speed processor for running the control plane functions. *See* Crump, col. 6, lines 33-36. As illustrated in FIG. 10 of Crump, the Routing functions 1020 and DRTM functions 1030 run on the SB processor 947, while the forwarding functions 1010 are substantially handled in hardware, and, in particular, by the ingress RSP 943 and the egress RSP 950. *See* Crump, Col. 7, lines 39-43.

In other words, Crump teaches a forwarding plane, i.e., ingress RSP 943 and egress RSP 950, implementing only the forwarding functions, and a separate control plane, i.e., SB processor 947, implementing all of the control plane functions, such as the control plane Routing and DRTM functions. Crump does not teach a forwarding plan implementing a portion of the control plane functions. It is important for Crump to implement the entire control plane functions exclusively on a control plane, since the forwarding plane functions do not diminish the processing power used for the Routing functions 1020 and the DRTM functions 1030. *See*

Crump, col. 7, lines 43-47. Put yet another way, if Crump's control plane functions are implemented on the forwarding plane, the processing power used for the control plane functions will be diminished. Since Crump's system is specifically designed to avoid such disadvantage, Crump's forwarding plane cannot implement any portion of the control plane functions, nor does it have a reason to do so.

Further disclosures of Crump have confirmed that Crump's forwarding plane does not implement any portion of the control plane functions. For example, Crump states "In this way, the fourth generation router 600 supports a distributed control plane that runs independently of the forwarding plane, and the control plane is scalable as control plane processing power is increased with each added ST card." See Crump, col. 6, lines 36-40. In other words, the control plane would not run independently of the forwarding plane, if some portions of the control plane functions are also implemented in the forwarding plane.

Claim 15 further recites "an infrastructure module resident on the control plane and the forwarding plane constructed and arranged to manage the connectivity between the control plane and the forwarding plane." Claims 19 and 22 recite similar features as claim 15.

As discussed above, Everdell does not teach or suggest a distributed processing architecture to offload portion of the control plane processing for a control plane protocol module from the control plane to at least one forwarding plane, such that a core functionality of the control plane protocol module is implemented at the control plane, while a portion of the control plane protocol module that is separate and distinct from the core functionality is implemented in the forwarding plane. Specifically, Everdell does not disclose a control plane and a forwarding plane as recited in claim 15. Consequently, Everdell cannot teach "an

infrastructure module ... to manage the connectivity between the control plane and the forwarding plane.” Crump does not cure the deficiencies of Everdell, as discussed above.

Likewise, Everdell does not teach “a communication library resident on the control plane and the forwarding plane to communicate with the infrastructure module to obtain information about control plane protocol modules and to setup connections with the control plane protocol modules” as explicitly claimed in claims 15, 19 and 22.


For at least the reasons discussed above, claims 15, 19, and 22 are patentably distinguishable over Everdell in view of Crump, as are their respective dependent claims 7-14, 20-21, and 23-24. Claims 7-15 and 19-24 are therefore in condition for allowance.

No new matter has been added by this amendment. Allowance of all claims is requested. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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